

THREE-DIMENSIONAL BRAIDED COVERED STENT

ABSTRACT OF THE DISCLOSURE

A prosthesis for transluminal implantation consists of a flexible tubular three-dimensionally braided structure of metal or polymeric monofilaments, and polymeric multifilament yarns. The prosthesis can be elastically deformed to reduce its diameter through axial elongation. The monofilaments and multifilament yarns are arranged in axially spaced apart helices, concentric on a common central axis of the prosthesis. The monofilaments are selectively shaped before their interbraiding with the multifilament yarns, either by an age-hardening or other heat-setting stage, or a cold-working stage that controllably plastically deforms the strands. The shaped structural strands cooperate to impart to the prosthesis its nominal shape and resilience. The textile strands cooperate to provide one or more layers of sheeting that reduce permeability and thereby enhance the utility of the prosthesis as a vascular graft. An alternative embodiment prosthesis includes elastically and plastically deformable structural strands, selectively plastically deformed by cold working, then three-dimensionally braided to form the prosthesis.

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